



**Comments of Gary Bobker, Policy Analyst**

**THE BAY INSTITUTE OF SAN FRANCISCO**

**BEFORE THE STATE WATER RESOURCES CONTROL BOARD**

**Fifth Workshop to Review Standards**

**for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary**

**Sacramento, California**

**September 1, 1994**

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The following comments are submitted by Gary Bobker, policy analyst at The Bay Institute of San Francisco, to the State Water Resources Control Board (Board) at its fifth workshop to review standards for the San Francisco Bay/Sacramento-San Joaquin Delta estuary.

Both the U.S. Environmental Protection Agency (EPA) and the Board have acknowledged the need for improved protection of water quality and fish and wildlife habitat in the estuary, and are proposing to adopt new Bay/Delta water quality standards. These comments are intended to summarize some of the major concerns of The Bay Institute regarding the necessary components of a Bay/Delta standards package, and related issues. The Institute's position on most of these points is expressed at greater length in our previous written comments to, and hearing testimony before, both EPA and the Board.

We believe that it is essential that the Board, after years of deferring action to improve protections for the estuary, not squander its resources or those of Bay/Delta stakeholders in any attempt to duplicate the work of EPA in formulating its proposed criteria. EPA has based its proposed criteria on the extensive technical record of the Bay/Delta Hearings, the San Francisco Estuary Project workshops, and many other sources, and has invited comment from all interested parties, including the Board. The most appropriate use of the Board's resources at this time would be, first, to supplement EPA's proposed criteria with other water quality objectives not addressed by EPA which are necessary to fully protect fish and wildlife uses of the estuary (without, however, delaying the overall adoption and implementation of improved standards any further); and, second, to proceed in an expedited manner with the steps necessary to issue a final water rights decision. On this last point, it is clear from the repeated failure to meet previous water quality proceedings deadlines that the Board must commit to a schedule for completion of the various phases of the water rights proceedings, and adhere to it.

Level of protection

State and federal antidegradation policies require that beneficial uses which existed at the time of the antidegradation marker (1968 in the case of the state, 1975 in the case of the federal government) be fully protected, not that protection is limited to the level of impact (i.e., development) which was experienced in the benchmark year. Declines in the populations of striped bass and longfin smelt, and natural production of chinook salmon, and possibly productivity of other species, were experienced in the late 1960s. Concurrently, Delta export increased dramatically, beginning in 1968 with the initiation of State Water Project operations. Therefore, improved Bay/Delta protections should at the least require that habitat conditions which existed in the estuary prior to 1968 be provided.

The long-term goal of state policy for protection of the estuary remains the objective, expressed by the Board in its 1978 Water Quality Plan for the Delta and Suisun Marsh, of maintaining fishery resources "at levels that at least approach those levels that would have existed had the CVP and SWP not been built." This objective should properly be modified to be consistent with the First California Court of Appeal's 1986 direction to the Board to consider the impacts of all water users.

### Estuarine habitat

The central feature of any comprehensive water quality standards package must be the provision of low salinity habitat in the broad, shallow reaches of Suisun Bay. The location of the 2 part-per-thousand (ppt) salinity isohaline is strongly correlated with the abundance of aquatic organisms at all trophic levels, which increases as the isohaline moves downstream. The Bay Institute therefore supports promulgation by EPA of an estuarine habitat standard based on compliance with salinity criteria at Roe Island, Chipps Island and the confluence of the Sacramento and San Joaquin Rivers between February 1 and June 30. We also support in concept the use of a sliding scale function which reflects changes in natural hydrology to calculate compliance.

A criterion which establishes an upstream limit for the 2 ppt salinity isohaline at the confluence is necessary in order to avoid exposing aquatic organisms, including protected endangered species, to unsuitable habitat in river and Delta channels. Some parties have suggested that such a requirement unacceptably limits estuarine variability. We agree that variability is a key objective of estuarine habitat standards. The San Francisco Estuary Project salinity/flow workshops concluded that seasonal, annual and interannual variability in salinity and other properties is characteristic of healthy estuarine ecosystems. The participants also recommended, however, that although the downstream position of the 2 ppt salinity isohaline should be unconstrained, an upstream limit of the position should be established. We believe that the confluence requirement of the proposed criteria is consistent with both these Estuary Project workshop findings.

Although EPA's proposed criteria provide an adequate mechanism for protecting estuarine habitat in Suisun Bay, we are concerned that the Roe Island component of the standard may not be invoked frequently enough to ensure an adequate level of protection for estuarine habitat. The Roe Island criterion is particularly crucial because it is associated with achieving the maxima of low salinity habitat in Suisun Bay and with the attainment of lowered salinities in the shallows of San Pablo Bay. Because of the triggering requirement, however, periods of attainment of low salinity habitat at Roe Island and downstream will be reduced in occurrence and duration. We note that even during the years between 1930 and 1991, a period in which intensive water development took place, the mean position of the 2 ppt isohaline was located near Roe Island.

We are also extremely concerned that estuarine habitat in San Pablo and South San Francisco Bays and the brackish tidal marshes of Suisun Bay will not be directly protected by EPA's proposed criteria. Beginning in 1987, various environmental groups (including The Bay Institute, Environmental Defense Fund and Natural Heritage Institute) have recommended

salinity and outflow criteria to protect beneficial uses of these important habitat areas. Although in somewhat rudimentary form, these recommendations provide the foundation for scientifically defensible standards that will fully protect estuarine habitat. For instance, the 2 ppt salinity standard to protect Suisun Bay that was presented to the Board by EDF and Contra Costa Water District during the 1987 Bay/Delta Hearings provided the basis for what eventually became EPA's proposed Suisun Bay estuarine habitat standard. Building on the specific salinity and outflow recommendations of the environmental organizations, numeric criteria should be refined and adopted in order to protect estuarine habitat in San Pablo and South San Francisco Bays and the brackish tidal marshes of Suisun Bay.

#### Fish migration and cold freshwater habitat

There appears to be general agreement that new water quality standards which place constraints on water project operations are necessary to protect outmigration of chinook salmon to the Pacific Ocean. Our recommendations are based on Alternatives D and E, contained in the 1992 testimony of the U.S. Fish and Wildlife Service to the Board (WRINT-FWS-7, page 57), and subsequent meetings with staff of resource agencies and other parties.

(1) Closure of the Delta Cross-Channel Gates from November 1 to June 30, in order to ensure protection for all outmigrating salmon runs, including the spring run. Closure of Georgiana Slough is not recommended, however, in order to avoid adverse impacts to adult salmon migrating upstream and to other species.

(2) Minimum flows on the Sacramento River at Rio Vista of between 4000 to 6000 cfs between February 1 and June 30.

(3) Minimum flows on the San Joaquin River. In April and May, flows at Vernalis should exceed 4000, 6000, 8000, 10,000 and 12,000 cfs in, respectively, critical, dry, below normal, above normal and wet years. Flows at Jersey Point from April through June should exceed 1000, 1500, 2000, 2500 and 3000 cfs in critical, dry, below normal, above normal and wet years. Minimum flows at Jersey Point should exceed 1000 cfs from November through March in all water year types.

(4) Limitations on combined state and federal project exports. Exports from November through March and in June should not exceed 2000, 3000, 4000, 5000 and 6000 cfs in, respectively, critical, dry, below normal, above normal and wet years. Exports in April and May of all water year types should be limited to 1500 cfs.

(5) Use of a salmon smolt survival index, as modified by EPA, to measure the success of operational water quality standards for fall-run chinook salmon. Failure to achieve the index values should automatically trigger appropriate review and revision of the standards for flow, export and gate closure at the first triennial review following non-attainment.

These proposed criteria address salmon migration. An additional standard to protect cold freshwater habitat for salmon is also needed. Because rearing temperatures for salmon must be maintained below 65 degrees F, according to the California Department of Fish and Game, a requirement should be adopted that temperatures of no greater than 65 degrees F should

be achieved at Freeport and Vernalis between April 1 and June 20 and between September 1 and November 30. Such a criterion should include a compliance mechanism (similar in concept to the sliding scale function proposed for the estuarine habitat standard) that reflects natural variability in temperature.

These fish migration and cold freshwater habitat standards will benefit a number of fish species whose eggs, larvae and juveniles are subject to diversion to the central Delta and entrainment by federal and state project export and other operations. Because chinook salmon represent the most sensitive use in terms of fish migration and cold freshwater habitat and because data on salmon are better developed than for other species, it is appropriate for the time being that these standards be based on protection of salmon alone.

#### Fish spawning

The Bay Institute continues to support promulgation of a standard to protect striped bass spawning habitat on the lower San Joaquin River. The evidence that striped bass spawning on the river's lower reaches is restricted by the presence of a salinity barrier from loading of land-derived salts is uncontroverted.

Some parties have claimed that enhancement of striped bass habitat will result in significant predation on San Joaquin River fall-run chinook salmon, whose populations are seriously depleted. Although striped bass will prey on salmon under particular conditions (when present in tributary waters or at the site of hatchery introductions), salmon do not appear to be a significant food item for striped bass in the Delta, which prefer to feed on threadfin shad and other forage fish. Therefore, although we believe that protection of naturally occurring estuarine and wetland habitat and native fish and wildlife species are the most sensitive beneficial uses of the Bay/Delta's waters and therefore merit priority in protection, we see no conflict between protection of native species/ecosystems and that of striped bass. Given the absence of such a conflict, this sport fishery resource represents a "secondary" beneficial use equal in importance to offstream water uses, and should be protected.

Finally, it should be emphasized that protections for striped bass also serve as an umbrella protection for other estuarine and freshwater species in the south Delta. For instance, various studies of agricultural drainage indicate that, even with toxic trace elements removed, the other constituents in drainwater can be toxic to salt-tolerant organisms. When trace elements are present, as is the case in much of the discharge of agricultural drainage to the San Joaquin River, their ability to bioaccumulate in the food chain and their toxicological effects on fish and wildlife species are severe and well-documented. Because sufficient data does not exist at this time to formulate numerical criteria to protect other south Delta species, however, protection of striped bass spawning habitat from the adverse effects of land-derived salts must serve as a surrogate.

Because reductions in salt loading to the San Joaquin River would be achieved primarily through agricultural source reduction measures, no water supply impacts should result from implementing the striped bass spawning criteria.

Requirements in summer, fall and early winter

We are encouraged to see that the Board has included, in its consideration of alternative water quality standards and their water supply impacts, new outflow requirements, export restrictions and caps on the percentage of Delta inflow diverted during the summer, fall and early winter period not covered by EPA's proposed criteria. We support the development and adoption of such requirements, although we are not prepared to recommend specific criteria at this time beyond the recommended protections for spring run listed earlier.

Ecosystem versus species-specific protections

Some parties have stated that Bay/Delta protections should be oriented toward ecosystem management rather than protections of individual species. We agree that ecosystem-wide protections merit the highest priority: it has long been our position that standards which protect estuarine and wildlife habitat for a range of fish and wildlife species and safeguard ecosystem functions such as biological productivity should be the core elements of a water quality plan.

However, when data is not available to set water quality standards that incorporate known habitat requirements of a number of different species, protections must be based on the needs of those individual species for which data is available and which therefore represent the most sensitive understood use of the Bay/Delta's waters. Measures to protect these species serve as an umbrella for the protection of other species. In the case of EPA's proposed criteria, for instance, salmon serve as a surrogate for other species affected by Delta water project operations, and striped bass as a surrogate for other species affected by salt loading to the San Joaquin River.

Water quantity vs non-quantity-related Bay/Delta protections

The emphasis on water quantity-related problems in EPA's proposed criteria (loss of low-salinity habitat) and in the Board's previous draft water quality measures (reductions in Delta inflow and outflow) are appropriate because habitat loss from altered salinity and flow regimes as a result of reductions in water quantity has been perhaps the most important factor, along with physical land use changes such as dam construction and diking of wetlands for agricultural use, in the degradation of water quality and decline of fish and wildlife populations in the estuary. There is no question that many other factors, such as pollutant loading and overexploitation, have also contributed to these dire conditions. The impacts of these additional factors, however, assume greater importance because the Bay/Delta environment is already so highly stressed as a result of the habitat losses from changes in water quantity and land use. Addressing secondary factors without addressing the water quantity-related problems is akin to treating symptoms without treating the disease.

We believe along with other parties that a comprehensive program to protect the Bay/Delta estuary that includes both water quantity-related and other non-water quantity-related measures must be implemented. For instance, physical reconstruction of and enhanced access to spawning and

rearing habitat for estuarine and anadromous species in the Delta and upstream is a vital component of restoring the estuary. However, we offer two caveats about how to proceed with such a comprehensive program.

(1) To the extent that Bay/Delta environmental degradation is caused by water quality degradation, improved protections should be required as part of the water quality standard setting process. To the extent that it is not, improved protections should be required through the appropriate regulatory forum, not the water quality process. Addressing non-water quality related protections through the water quality standard setting process would not only be legally questionable but administratively unworkable.

(2) Water quantity-related protections are not a substitute for other types of improvements, nor is the reverse true. The needs of fish and wildlife species in the Bay/Delta estuary include both improvements in salinity and flow conditions and improvements in other, secondary factors. We are therefore opposed to the establishment of a mitigation credit mechanism which would treat "non-kind" protections as tradeable.